Letters

Studies of Fallout

The article relative to radiation hazards and Government [*Science* **129**, 1210 (1959)] impressed me as a fair, sound, and useful statement of the problem. I am sorry, however, that Project Sunshine was written up in such a negative way. This was probably more a matter of public relations on the part of the Division of Biology and Medicine than anything else.

As the United States Representative to the United Nations Scientific Committee on the Effects of Atomic Radiation, I was impressed to learn that the United States had been able to make available a wealth of material as a result of Sunshine and related projects without which the development of our report to the General Assembly of last August would have been difficult. The material provided this committee by the United States was greater than that provided by all other countries.

It would be helpful if one thing could be made clear—the tremendous difficulty of making these analyses of almost infinitesimal amounts of material. One of the great achievements of Libby and the radiochemists, both those who are associated with him and radiochemists in general, has been the development of reliable analytical methods that have made the studies of fallout meaningful. Determinations of total beta activity as made by the Public Health Service are meaningful only in light of the ability to compare them with the more exact determinations that are made.

The Atomic Energy Commission has been active since its inception in stimulating interest and competence in the Public Health Service in the field of radiation and radiobiology. The activities of the Public Health Service mentioned in the article—operations at the Columbia River and the Robert A. Taft Sanitary Engineering Center, offsite monitoring, and the research program in radiobiology—were all stimulated by the AEC or its predecessor, the Manhattan Project.

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Basic Research

Definitions of basic research [for example, C. V. Kidd, *Science* **129**, 368 (1959)] remind me of the fat and lean physicians who were asked to classify a couple of hundred patients as obese, normal, or underweight. It should come as no surprise to find that the lean physicians classified many more patients as obese than did the fat ones.

Similarly, definitions of basic research are not made by engineers, physicists, research managers, and so on—they are made by people, each with his personal packet of professional training and biases. Each such person tends, I believe, to define basic research from his own personal place in the scientific spectrum —everything on his left is basic, everything on his right, applied. Research an engineer calls basic may well be regarded as applied by a physicist.

This approach is, of course, practical nominalism, as opposed to the attitude of those who believe that if they can find the "lost chord" of magic words they can unmask a universal, essence, or concept of "basic research" good for the ages, or at least good till the next administration.

The working scientist could relegate this discussion to the metaphysicians of the philosophy department or to the front office and proceed with his business if it were not for one practical consequence. Good research proposals may find themselves wandering in a limbo between fund-granting agencies—too basic for the hard-bitten practical men of one, too applied for the purists of another. Good will on both sides can, and does, solve such problems, but beware of Aristotelian classifications in the non-Aristotelian world of science.

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Basic Research in Europe

In the interesting survey article entitled "Basic research in Europe" [*Science* **128**, 227 (1958)], written by David M. Gates, the author refers to the state of North Westphalia, which at the present time does not exist. Probably the author had the state of North Rhin-Westphalia in mind instead.

It is also stated that research funds in Spain "are controlled largely through the Superior Council for Scientific Research, under the Ministry of Education, and are distributed to academic institutes in all fields of science, *except agriculture*" (italics mine). This statement shows unfortunate misinformation on the part of the author. The "Misión-Biológica de Galicia" has been engaged in agricultural research since 1921. That institution has been absorbed by the Superior Council for Scientific Research, which at the same time supports agricultural research in institutes and experimental stations in localities such as Madrid, Sevilla, Granada, Murcia, Salamanca, and Santiago de Compostela, among others.

Another obvious piece of misinforma-